

## CLAIMS

1. A process for the production of synthesis gas from heavy charges comprising a partial oxidation of heavy charges with oxygen or air enriched in oxygen in the presence of vapour carried out at temperatures higher than 1000°C and pressures equal to or higher than 20 atm and the subsequent cooling of the synthesis gas obtained, by the direct injection of water into the gas itself followed by the separation of the water effected by means of an adduction pipe surrounded by a concentric tube open at both ends so as to form a ring through which the cooled gas and water can rise, characterized in that the distance (L) between the lower end of the adduction pipe and the lower end of the open concentric tube must be equal to or higher than x times the diameter (D) of said lower end of said adduction pipe,
- wherein x varies in relation to the specific gas mass flow-rate (F), expressed in kg/h/cm<sup>2</sup>, according to the equation  $x = 0.026 F + 0.15$ .